WHAT IS CLAIMED IS:

1. A water-absorptive contact lens whose water content is in a range from 10% to 60% and which is formed of a polymeric material obtained by copolymerization of a polymerizable monomer composition that includes: (A) 20 to 70 wt.% of alkoxypolyethylene glycol (meth)acrylate having at least three ethylene glycol units, and (B) 30 to 80 wt.% of a silicon-containing macromonomer.

2. A water-absorptive contact lens according to claim 1, wherein the alkoxypolyethylene glycol (meth)acrylate has three to five ethylene glycol units.

3. A water-absorptive contact lens according to claim 1, wherein the alkoxypolyethylene glycol (meth)acrylate having at least three ethylene glycol units is methoxy triethylene glycol acrylate.

4. A water-absorptive contact lens according to claim 1, wherein the silicon-containing macromonomer is a polysiloxane macromonomer represented by the following formula (I):

$$A^1–U^1–(–S^1–U^2–)_n–S^2–U^3–A^2 \quad \text{..... (I)}$$

wherein A^1 is a group represented by the following formula (II):

$$Y^{21}–Z^{21}–R^{31}– \quad \text{..... (II)}$$

wherein Y^{21} is an acryloyl group, a vinyl group or an allyl group,

Z^{21} is an oxygen atom or a direct bond, and R^{31} is a direct bond or a linear, a branched, or an aromatic alkylene group having 1 to 12 carbon atoms;

A^2 is a group represented by the following formula (III):

$$-R^{34}-Z^{22}-Y^{22} \text{ ..... (III)}$$

wherein Y^{22} is an acryloyl group, a vinyl group, or an allyl group, Z^{22} is an oxygen atom or a direct bond, and R^{34} is a direct bond or a linear, a branched, or an aromatic alkylene group having 1 to 12 carbon atoms, where Y^{21} in the formula (II) and Y^{22} in the formula (III) may be the same or different;

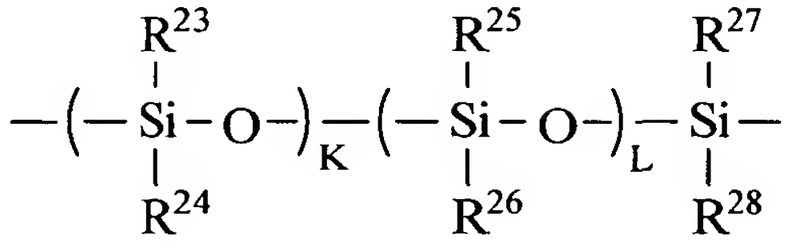
U^1 is a group represented by the following formula (IV):

$$-X^{21}-E^{21}-X^{25}-R^{32}- \text{ ..... (IV)}$$

wherein each of X^{21} and X^{25} is independently selected from a direct bond, an oxygen atom, and an alkylene glycol group, E^{21} is $-NHCO-$ group (in this case, X^{21} is a direct bond, X^{25} is an oxygen atom or an alkylene glycol group, and E^{21} and X^{25} forms a urethane bond), $-CONH-$ group (in this case, X^{21} is an oxygen atom or an alkylene glycol group, X^{25} is a direct bond, and E^{21} and X^{21} form a urethane bond), or a divalent group derived from a diisocyanate selected from the group consisting of a saturated or an unsaturated aliphatic diisocyanate, an alicyclic diisocyanate, and an aromatic diisocyanate (in this case, each of X^{21} and X^{25} is independently selected from an oxygen atom and an alkylene glycol group, and E^{21} forms two urethane bonds between X^{21} and X^{25}), and R^{32} is a linear or a branched alkylene group having 1 to 6 carbon atoms;

each of S^1 and S^2 is independently a group represented by the

following formula (V):



..... (V)

wherein each of R^{23}, R^{24}, R^{25}, R^{26}, R^{27}, and R^{28} is independently an alkyl group having 1 to 6 carbon atoms, a fluorinated alkyl group, or a phenyl group, K is an integer of 1 to 1500, L is 0 or an integer of 1 to 1499, and K+L is an integer of 1 to 1500;

U^2 is a group represented by the following formula (VI):

$$-R^{37}-X^{27}-E^{24}-X^{28}-R^{38}- \quad \text{..... (VI)}$$

wherein each of R^{37} and R^{38} is independently a linear or a branched alkylene group having 1 to 6 carbon atoms, each of X^{27} and X^{28} is independently an oxygen atom or an alkylene glycol group, E^{24} is a divalent group derived from a diisocyanate selected from the group consisting of a saturated or an unsaturated aliphatic diisocyanate, an alicyclic diisocyanate, and an aromatic diisocyanate (in this case, E^{24} forms two urethane bonds between X^{27} and X^{28});

U^3 is a group represented by the following formula (VII):

$$-R^{33}-X^{26}-E^{22}-X^{22}- \quad \text{..... (VII)}$$

wherein R^{33} is a linear or a branched alkylene group having 1 to 6 carbon atoms, each of X^{22} and X^{26} is independently selected from a direct bond, an oxygen atom, and an alkylene glycol group, E^{22} is –NHCO– group (in this case, X^{22} is an oxygen atom or an alkylene glycol group, X^{26} is a direct bond, and E^{22} and X^{22} form a urethane bond), –CONH– group (in this case, X^{22} is a direct bond, X^{26} is an oxygen atom or an alkylene glycol group,

and E^{22} and X^{26} form a urethane bond), or a divalent group derived from a diisocyanate selected from the group consisting of a saturated or an unsaturated aliphatic diisocyanate, an alicyclic diisocyanate, and an aromatic diisocyanate (in this case, each of X^{22} and X^{26} is independently an oxygen atom or an alkylene glycol group, and E^{22} forms two urethane bonds between X^{22} and X^{26}); and

n is 0 or an integer of 1 to 10.

5. A water-absorptive contact lens according to claim 1, wherein the polymerizable monomer composition further includes a crosslinking agent.

6. A water-absorptive contact lens according to claim 1, wherein the polymerizable monomer composition further includes at least one reinforcing monomer.

7. A water-absorptive contact lens according to claim 6, wherein the at least one reinforcing monomer is included in the polymerizable monomer composition in an amount from 1 to 20 parts by weight per 100 parts by weight of the polymerizable monomer composition.

8. A water-absorptive contact lens according to claim 1, wherein the polymerizable monomer composition further includes at least one hydrophilicity monomer.

9. A water-absorptive contact lens according to claim 8, wherein the at least one hydrophilicity monomer is included in the polymerizable monomer composition in an amount of 1 to 30 parts by weight per 100 parts by weight of the polymerizable monomer composition.

10. A method of producing a water-absorptive contact lens according to claim 1, the method comprising the steps of:

preparing a polymerizable monomer composition which at least includes (A) alkoxypolyethylene glycol (meth)acrylate having at least three ethylene glycol units and (B) a silicon-containing macromonomer;

introducing the polymerizable monomer composition into a vessel or a mold cavity;

copolymerizing the polymerizable monomer composition by photo-polymerization or heat-polymerization to obtain a copolymer; and

subjecting the obtained copolymer to a hydration treatment.

11. A water-absorptive contact lens whose water content is in a range from 10% to 60% and which is formed of a polymeric material obtained by copolymerization of a polymerizable monomer composition that includes: (A) 20 to 70 wt.% of alkoxypolyethylene glycol (meth)acrylate having at least three ethylene glycol units, (B) 10 to 70 wt.% of a

silicon-containing macromonomer, and (C) 1 to 50 wt.% of a silicon-containing monomer different from the slilicon-containing macromonomer, and/or fluorine-containing alkyl(meth)acrylate.

12. A water-absorptive contact lens according to claim 11, wherein the alkoxypolyethylene glycol (meth)acrylate has three to five ethylene glycol units.

13. A water-absorptive contact lens according to claim 11, wherein the alkoxypolyethylene glycol (meth)acrylate having at least three ethylene glycol units is methoxy triethylene glycol acrylate.

14. A water-absorptive contact lens according to claim 11, wherein the silicon-containing macromonomer is a polysiloxane macromonomer represented by the following formula (I):

$$A^1–U^1–(–S^1–U^2–)_n–S^2–U^3–A^2 \quad \text{..... (I)}$$

wherein A^1 is a group represented by the following formula (II):

$$Y^{21}–Z^{21}–R^{31}– \quad \text{..... (II)}$$

wherein Y^{21} is an acryloyl group, a vinyl group or an allyl group, Z^{21} is an oxygen atom or a direct bond, and R^{31} is a direct bond or a linear, a branched, or an aromatic alkylene group having 1 to 12 carbon atoms;

A^2 is a group represented by the following formula (III):

$$–R^{34}–Z^{22}–Y^{22} \quad \text{..... (III)}$$

wherein Y^{22} is an acryloyl group, a vinyl group, or an allyl group, Z^{22} is an oxygen atom or a direct bond, and R^{34} is a direct bond or a linear, a branched, or an aromatic alkylene group having 1 to 12 carbon atoms, where Y^{21} in the formula (II) and Y^{22} in the formula (III) may be the same or different;

U^1 is a group represented by the following formula (IV):

$$-X^{21}-E^{21}-X^{25}-R^{32}- \quad \text{..... (IV)}$$

wherein each of X^{21} and X^{25} is independently selected from a direct bond, an oxygen atom, and an alkylene glycol group, E^{21} is –NHCO– group (in this case, X^{21} is a direct bond, X^{25} is an oxygen atom or an alkylene glycol group, and E^{21} and X^{25} form a urethane bond), –CONH– group (in this case, X^{21} is an oxygen atom or an alkylene glycol group, X^{25} is a direct bond, and E^{21} and X^{21} forms a urethane bond), or a divalent group derived from a diisocyanate selected from the group consisting of a saturated or an unsaturated aliphatic diisocyanate, an alicyclic diisocyanate, and an aromatic diisocyanate (in this case, each of X^{21} and X^{25} is independently selected from an oxygen atom and an alkylene glycol group, and E^{21} forms two urethane bonds between X^{21} and X^{25}), and R^{32} is a linear or a branched alkylene group having 1 to 6 carbon atoms;

each of S^1 and S^2 is independently a group represented by the following formula (V):

$$-\left(-\underset{\displaystyle R^{24}}{\overset{\displaystyle R^{23}}{\overset{|}{\underset{|}{Si}}}}-O-\right)_K-\left(-\underset{\displaystyle R^{26}}{\overset{\displaystyle R^{25}}{\overset{|}{\underset{|}{Si}}}}-O-\right)_L-\underset{\displaystyle R^{28}}{\overset{\displaystyle R^{27}}{\overset{|}{\underset{|}{Si}}}}- \quad \text{..... (V)}$$

wherein each of R^{23}, R^{24}, R^{25}, R^{26}, R^{27}, and R^{28} is independently

an alkyl group having 1 to 6 carbon atoms, a fluorinated alkyl group, or a phenyl group, K is an integer of 1 to 1500, L is 0 or an integer of 1 to 1499, and K+L is an integer of 1 to 1500;

U^2 is a group represented by the following formula (VI):

$$-R^{37}-X^{27}-E^{24}-X^{28}-R^{38}- \quad \text{..... (VI)}$$

wherein each of R^{37} and R^{38} is independently a linear or a branched alkylene group having 1 to 6 carbon atoms, each of X^{27} and X^{28} is independently an oxygen atom or an alkylene glycol group, E^{24} is a divalent group derived from a diisocyanate selected from the group consisting of a saturated or an unsaturated aliphatic diisocyanate, an alicyclic diisocyanate, and an aromatic diisocyanate (in this case, E^{24} forms two urethane bonds between X^{27} and X^{28});

U^3 is a group represented by the following formula (VII):

$$-R^{33}-X^{26}-E^{22}-X^{22}- \quad \text{..... (VII)}$$

wherein R^{33} is a linear or a branched alkylene group having 1 to 6 carbon atoms, each of X^{22} and X^{26} is independently selected from a direct bond, an oxygen atom, and an alkylene glycol group, E^{22} is $-NHCO-$ group (in this case, X^{22} is an oxygen atom or an alkylene glycol group, X^{26} is a direct bond, and E^{22} and X^{22} form a urethane bond), $-CONH-$ group (in this case, X^{22} is a direct bond, X^{26} is an oxygen atom or an alkylene glycol group, and E^{22} and X^{26} form a urethane bond), or a divalent group derived from a diisocyanate selected from the group consisting of a saturated or an unsaturated aliphatic diisocyanate, an alicyclic diisocyanate, and an aromatic diisocyanate (in this case, each of X^{22} and X^{26} is independently an oxygen atom or an

alkylene glycol group, and E^{22} forms two urethane bonds between X^{22} and X^{26}); and
n is 0 or an integer of 1 to 10.

15. A water-absorptive contact lens according to claim 11, wherein the polymerizable monomer composition further includes a crosslinking agent.

16. A water-absorptive contact lens according to claim 11, wherein the polymerizable monomer composition further includes at least one reinforcing monomer.

17. A water-absorptive contact lens according to claim 16, wherein the at least one reinforcing monomer is included in the polymerizable monomer composition in an amount of 1 to 20 parts by weight per 100 parts by weight of the polymerizable monomer composition.

18. A water-absorptive contact lens according to claim 11, wherein the polymerizable monomer composition further includes at least one hydrophilicity monomer.

19. A water-absorptive contact lens according to claim 18, wherein the at least one hydrophilicity monomer is included in the polymerizable monomer composition in an amount of 1 to 30 parts by weight per 100 parts by weight of the polymerizable monomer composition.

20. A method of producing a water-absorptive contact lens according to claim 11, the method comprising the steps of:

preparing a polymerizable monomer composition which at least includes (A) alkoxypolyethylene glycol (meth)acrylate having at least three ethylene glycol units and (B) a silicon-containing macromonomer;

introducing the polymerizable monomer composition into a vessel or a mold cavity;

copolymerizing the polymerizable monomer composition by photo-polymerization or heat-polymerization to obtain a copolymer; and

subjecting the obtained copolymer to a hydration treatment.

21. A water-absorptive contact lens whose water content is in a range from 10% to 60% and which is formed of a polymeric material obtained by copolymerization of a polymerizable monomer composition that includes: (A) 19 to 69 wt.% of alkoxypolyethylene glycol (meth)acrylate having at least three ethylene glycol units, (B) 10 to 70 wt.% of a silicon-containing macromonomer, (C) 1 to 50 wt.% of a silicon-containing monomer different from the slilicon-containing macromonomer, and/or fluorine-containing alkyl(meth)acrylate, and (D) 1 to 50 wt.% of dimethyl acrylamide, a total amount of the alkoxypolyethylene glycol

(meth)acrylate having at least three ethylene glycol units and the dimethyl acrylamide being in a range from 20 wt.% to 70 wt.%.

22. A water-absorptive contact lens according to claim 21, wherein the alkoxypolyethylene glycol (meth)acrylate has three to five ethylene glycol units.

23. A water-absorptive contact lens according to claim 21, wherein the alkoxypolyethylene glycol (meth)acrylate having at least three ethylene glycol units is methoxy triethylene glycol acrylate.

24. A water-absorptive contact lens according to claim 21, wherein the silicon-containing macromonomer is a polysiloxane macromonomer represented by the following formula (I):

$$A^1–U^1–(–S^1–U^2–)_n–S^2–U^3–A^2 \quad \text{..... (I)}$$

wherein A^1 is a group represented by the following formula (II):

$$Y^{21}–Z^{21}–R^{31}– \quad \text{..... (II)}$$

wherein Y^{21} is an acryloyl group, a vinyl group or an allyl group, Z^{21} is an oxygen atom or a direct bond, and R^{31} is a direct bond or a linear, a branched, or an aromatic alkylene group having 1 to 12 carbon atoms;

A^2 is a group represented by the following formula (III):

$$–R^{34}–Z^{22}–Y^{22} \quad \text{..... (III)}$$

wherein Y^{22} is an acryloyl group, a vinyl group, or an allyl group,

Z^{22} is an oxygen atom or a direct bond, and R^{34} is a direct bond or a linear, a branched, or an aromatic alkylene group having 1 to 12 carbon atoms, where Y^{21} in the formula (II) and Y^{22} in the formula (III) may be the same or different;

U^1 is a group represented by the following formula (IV):

$$-X^{21}-E^{21}-X^{25}-R^{32}- \quad \text{..... (IV)}$$

wherein each of X^{21} and X^{25} is independently selected from a direct bond, an oxygen atom, and an alkylene glycol group, E^{21} is –NHCO– group (in this case, X^{21} is a direct bond, X^{25} is an oxygen atom or an alkylene glycol group, and E^{21} and X^{25} form a urethane bond), –CONH– group (in this case, X^{21} is an oxygen atom or an alkylene glycol group, X^{25} is a direct bond, and E^{21} and X^{21} forms a urethane bond), or a divalent group derived from a diisocyanate selected from the group consisting of a saturated or an unsaturated aliphatic diisocyanate, an alicyclic diisocyanate, and an aromatic diisocyanate (in this case, each of X^{21} and X^{25} is independently selected from an oxygen atom and an alkylene glycol group, and E^{21} forms two urethane bonds between X^{21} and X^{25}), and R^{32} is a linear or a branched alkylene group having 1 to 6 carbon atoms;

each of S^1 and S^2 is independently a group represented by the following formula (V):

$$-\left(-\underset{\displaystyle R^{24}}{\overset{\displaystyle R^{23}}{\overset{|}{\underset{|}{Si}}}}-O-\right)_K-\left(-\underset{\displaystyle R^{26}}{\overset{\displaystyle R^{25}}{\overset{|}{\underset{|}{Si}}}}-O-\right)_L-\underset{\displaystyle R^{28}}{\overset{\displaystyle R^{27}}{\overset{|}{\underset{|}{Si}}}}- \quad \text{..... (V)}$$

wherein each of R^{23}, R^{24}, R^{25}, R^{26}, R^{27}, and R^{28} is independently an alkyl group having 1 to 6 carbon atoms, a fluorinated alkyl

group, or a phenyl group, K is an integer of 1 to 1500, L is 0 or an integer of 1 to 1499, and K+L is an integer of 1 to 1500;

U^2 is a group represented by the following formula (VI):

$$-R^{37}-X^{27}-E^{24}-X^{28}-R^{38}- \quad \text{..... (VI)}$$

wherein each of R^{37} and R^{38} is independently a linear or a branched alkylene group having 1 to 6 carbon atoms, each of X^{27} and X^{28} is independently an oxygen atom or an alkylene glycol group, E^{24} is a divalent group derived from a diisocyanate selected from the group consisting of a saturated or an unsaturated aliphatic diisocyanate, an alicyclic diisocyanate, and an aromatic diisocyanate (in this case, E^{24} forms two urethane bonds between X^{27} and X^{28});

U^3 is a group represented by the following formula (VII):

$$-R^{33}-X^{26}-E^{22}-X^{22}- \quad \text{..... (VII)}$$

wherein R^{33} is a linear or a branched alkylene group having 1 to 6 carbon atoms, each of X^{22} and X^{26} is independently selected from a direct bond, an oxygen atom, and an alkylene glycol group, E^{22} is –NHCO– group (in this case, X^{22} is an oxygen atom or an alkylene glycol group, X^{26} is a direct bond, and E^{22} and X^{22} form a urethane bond), –CONH– group (in this case, X^{22} is a direct bond, X^{26} is an oxygen atom or an alkylene glycol group, and E^{22} and X^{26} form a urethane bond), or a divalent group derived from a diisocyanate selected from the group consisting of a saturated or an unsaturated aliphatic diisocyanate, an alicyclic diisocyanate, and an aromatic diisocyanate (in this case, each of X^{22} and X^{26} is independently an oxygen atom or an alkylene glycol group, and E^{22} forms two urethane bonds

between X^{22} and X^{26}); and
n is 0 or an integer of 1 to 10

25. A water-absorptive contact lens according to claim 21, wherein the dimethyl acrylamide is included in the polymerizable monomer composition in an amount of 2 to 40 wt.%.

26. A water-absorptive contact lens according to claim 21, wherein the polymerizable monomer composition further includes a crosslinking agent.

27. A water-absorptive contact lens according to claim 21, wherein the polymerizable monomer composition further includes at least one reinforcing monomer.

28. A water-absorptive contact lens according to claim 27, wherein the at least one reinforcing monomer is included in the polymerizable monomer composition in an amount of 1 to 20 parts by weight per 100 parts by weight of the polymerizable monomer composition.

29. A water-absorptive contact lens according to claim 21, wherein the polymerizable monomer composition further includes at least one hydrophilicity monomer.

30. A water-absorptive contact lens according to

claim 29, wherein the at least one hydrophilicity monomer is included in the polymerizable monomer composition in an amount of 1 to 30 parts by weight per 100 parts by weight of the polymerizable monomer composition.

31. A method of producing a water-absorptive contact lens according to claim 21, the method comprising the steps of:

preparing a polymerizable monomer composition which at least includes (A) alkoxypolyethylene glycol (meth)acrylate having at least three ethylene glycol units and (B) a silicon-containing macromonomer;

introducing the polymerizable monomer composition into a vessel or a mold cavity;

copolymerizing the polymerizable monomer composition by photo-polymerization or heat-polymerization to obtain a copolymer; and

subjecting the obtained copolymer to a hydration treatment.